

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Previously Presented) A method for inhibiting hydrate formation blockage in a flow line transporting a hydrocarbon containing fluid, the method comprising:

adding water to a hydrocarbon containing fluid to produce a water cut enhanced hydrocarbon containing fluid, whereby the water cut enhanced hydrocarbon containing fluid consists essentially of hydrocarbon containing fluid, water, and optionally salt or brine; and

transporting the water cut enhanced hydrocarbon containing fluid through a flow line under conditions that would be conducive for the formation of hydrates in the original hydrocarbon containing fluid;

whereby hydrate formation blockage is inhibited from forming within the flow line by the addition of the water.

2. (Original) The method of claim 1 wherein:
sufficient water is added such that the water cut of the water cut enhanced hydrocarbon containing fluid is at least 50%.
3. (Original) The method of claim 1 wherein:
sufficient water is added such that the water cut of the water cut enhanced hydrocarbon containing fluid is at least 75%.

4. (Original) The method of claim 1 wherein:
sufficient water is added such that the water cut of the water cut enhanced hydrocarbon containing fluid is at least 85%.
5. (Original) The method of claim 1 wherein:
sufficient water is added to lower the hydrate equilibrium temperature of the water cut enhanced hydrocarbon containing fluid by at least 2°F relative to the original hydrocarbon containing fluid.
6. (Original) The method of claim 1 wherein:
sufficient water is added to lower the hydrate equilibrium temperature of the water cut enhanced hydrocarbon containing fluid by at least 5°F relative to the original hydrocarbon containing fluid.
7. (Original) The method of claim 1 wherein:
salt is added to the water to increase the salinity of the water cut enhanced hydrocarbon containing fluid.
8. (Original) The method of claim 7 wherein:
the weight % of salt in the water cut enhanced hydrocarbon containing fluid is at least 5%.
9. (Original) The method of claim 7 wherein:
the weight % of the salt in the water cut enhanced hydrocarbon containing fluid is at least 10%.
10. (Original) The method of claim 7 wherein:
the water phase of the water cut enhanced hydrocarbon containing fluid is continuous;
and

the water cut enhanced hydrocarbon containing fluid has a weight % of salt of at least 5%.

11. (Original) The method of claim 1 wherein:
the water is added to the hydrocarbon containing fluid at a sub sea location.
12. (Original) The method of claim 1 wherein:
sufficient water is added such that hydrate formation is self limiting as hydrocarbon hydrate forming components in the water cut enhanced hydrocarbon containing fluid are exhausted through the formation of hydrate particles.
13. (Previously Presented) The method of claim 1 wherein:
sufficient water is added such that the hydrocarbon containing fluid is converted from a water-in-oil emulsion to a water-continuous emulsion thereby decreasing emulsion viscosity and reducing pressure drop in the flow line.
14. (Previously Presented) A system for preventing the formation of hydrate blockage in a flow line, the system comprising:

a flow line for transporting a hydrocarbon containing fluid;

a water injection conduit fluidly connected to the flow line to add water to the flow line, the water injection conduit being in fluid communication with one of a source of sea water, a source of fresh water, a subsea well or water produced from fluids from a hydrocarbon producing well bore; and

a hydrocarbon source which is in fluid communication with the flow line to provide a hydrocarbon containing fluid to the flow line;

wherein water may be added to the flow line from the water injection conduit to to produce a water cut enhanced hydrocarbon containing fluid, whereby the water cut

enhanced hydrocarbon containing fluid consists essentially of hydrocarbon containing fluid, water, and optionally salt or brine.

15. (Original) The system of claim 14 wherein:
the hydrocarbon source is a well bore.
16. (Original) The system of claim 14 further comprising:

a water source fluidly connected to the water injection conduit; and

the water source is one of sea water, a sub sea water well or a water source mounted on an offshore platform.
17. (Original) The system of claim 14 further comprising:
a water separator fluidly connected to the flow line to receive fluids containing hydrocarbons and water, the water separator being capable of separating water from hydrocarbons.
18. (Original) The system of claim 17 wherein:
the flow line, water separator and water injection conduit cooperate to form a loop wherein water from the flow line may be separated by the water separator and delivered back to the water injection conduit to be reinjected into the flow line.
19. (Original) The system of claim 14 further comprising:
a salt dispenser which connects relative to the flow line so that salt may be added to increase the salinity of the hydrocarbon containing fluid.
20. (Previously Presented) The system of claim 14 wherein:
the water injection conduit is in fluid communication with a source of sea water.
21. (Previously Presented) The system of claim 14 wherein:

the water injection conduit is in fluid communication with a subsea well.

22. (Previously Presented) The system of claim 14 wherein:
The water injection conduit is in fluid communication with separated water produced from a hydrocarbon producing well bore.
23. (Previously Presented) The system of claim 14 wherein:
The water injection conduit is in fluid communication with a source of fresh water.
24. (Previously Presented) A method for inhibiting hydrate formation blockage in a flow line transporting a hydrocarbon containing fluid, the method comprising:

adding water to a hydrocarbon containing fluid to produce a water cut enhanced hydrocarbon containing fluid, wherein sufficient water is added such that the water cut of the water cut enhanced hydrocarbon containing fluid is at least 50% and whereby the water cut enhanced hydrocarbon containing fluid consists essentially of hydrocarbon containing fluid, water, and optionally salt or brine; and

transporting the water cut enhanced hydrocarbon containing fluid through a flow line under conditions that would be conducive for the formation of hydrates in the original hydrocarbon containing fluid;

whereby hydrate formation blockage is inhibited from forming within the flow line by the addition of the water to form a slurry of hydrates and water.

25. (Previously Presented) A method for inhibiting hydrate formation blockage in a flow line transporting a hydrocarbon containing fluid, the method comprising:

adding water to a hydrocarbon containing fluid to produce a water cut enhanced hydrocarbon containing fluid, wherein sufficient water is added such that hydrate formation is self limiting as hydrocarbon hydrate forming components in the water

cut enhanced hydrocarbon containing fluid are exhausted through the formation of hydrate particles and whereby the water cut enhanced hydrocarbon containing fluid consists essentially of hydrocarbon containing fluid, water, and optionally salt or brine; and

transporting the water cut enhanced hydrocarbon containing fluid through a flow line under conditions that would be conducive for the formation of hydrates in the original hydrocarbon containing fluid;

whereby hydrate formation blockage is inhibited from forming within the flow line by the addition of the water to form a slurry of hydrates and water.

26. (Previously Presented) A method for inhibiting hydrate formation blockage in a flow line transporting a hydrocarbon containing fluid, the method comprising:

adding water to a hydrocarbon containing fluid to produce a water cut enhanced hydrocarbon containing fluid, wherein sufficient water is added such that the hydrocarbon containing fluid is converted from a water-in-oil emulsion to a water-continuous emulsion thereby decreasing emulsion viscosity and reducing pressure drop in the flow line and whereby the water cut enhanced hydrocarbon containing fluid consists essentially of hydrocarbon containing fluid, water, and optionally salt or brine; and

transporting the water cut enhanced hydrocarbon containing fluid through a flow line under conditions that would be conducive for the formation of hydrates in the original hydrocarbon containing fluid;

whereby hydrate formation blockage is inhibited from forming within the flow line by the addition of the water to form a slurry of hydrates and water.